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EXERCISE 12.1 - Question No. 1

Get the algebraic expressions in the following cases using variables, constants and arithmetic operations. (i) Subtraction of z from y . (ii) One-half of the sum of numbers x and y . (iii) The number z multiplied by itself. (iv) One-fourth of the product of numbers p and q . (v) Numbers x and y both squared and added. (vi) Number 5 added to three times the product of numbers m and n . (vii) Product of numbers y and z subtracted from 10. (viii) Sum of numbers a and b subtracted from their product.

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EXERCISE 12.1 - Question No. 2

Identify the terms and their factors in the following expressions Show the terms and factors by tree diagrams. (a) $x - 3$ (b) $1 + x + x^2$ (c) $y - y^3$ (d) $5xy^2 + 7x^2y$

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EXERCISE 12.1 - Question No. 3

Identify the numerical coefficients of terms (other than constants) in the following expressions : (i) $5 - 3t^2$ (ii) $1 + t + t^2 + t^3$ (iii) $x + 2xy + 3y$ (iv) $100m + 100n$

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EXERCISE 12.1 - Question No. 4

Identify terms which contain x and give the coefficient of x . (i)

$$y^2x + y \text{ (ii) } 13y^2 - 8yx \text{ (iii) } x + y + 2 \text{ (iv) } 5 + z + zx$$

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EXERCISE 12.1 - Question No. 5

Classify into monomials, binomials and trinomials. (i) $4y - 7z$ (ii) y^2

$$\text{(iii) } x + y - xy \text{ (iv) } 100$$

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EXERCISE 12.1 - Question No. 6

State whether a given pair of terms is of like or unlike terms. (i) 1100

(ii) $-7x, \frac{5}{2}x$ (iii) $-29x, 29y$ (iv) $14xy, 42yx$

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EXERCISE 12.1 - Question No. 7

Identify like terms in the following : (a)

$-xy^2, -4yx^2, 8x^2, 2xy^2, 7y, -11x^2, -100x, -11yx, 20x^2y, -$

(b)

$10pq, 7p, 8q, -p^2q^2, -7qp, -100q, -23, 12q^2p^2, -5p^2, 41, 24$

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EXERCISE 12.2 - Question No. 2

Add : (i) $3mn - 5mn, 8mn - 4mn$ (ii) $t - 8tz, 3tz - z, z - t$

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EXERCISE 12.2 - Question No. 3

Subtract : (i) $-5y^2$ from y^2 (ii) $6xy$ from (iii) $(a - b)$ from $(a + b)$

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EXERCISE 12.2 - Question No. 4

What should be added to $x^2 + xy + y^2$ to obtain $2x^2 + 3xy$?

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EXERCISE 12.2 - Question No. 5

What should be taken away from $3x^2 - 4y^2 + 5xy + 20$ to obtain

$$-x^2 - y^2 + 6xy + 20 ?$$

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EXERCISE 12.2 - Question No. 6

From the sum of $3x - y + 11$ and $-y - 11$ subtract $3x - y - 11$.

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EXERCISE 12.3 - Question No. 1

If $m = 2$ find the value of : (i) $m - 2$ (ii) $3m - 5$ (iii) $9 - 5m$ (iv)

$$3m^2 - 2m - 7$$

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EXERCISE 12.3 - Question No. 2

If $p = -2$, find the value of : (i) $4p + 7$ (ii) $-3p^2 + 4p + 7$ (iii)
 $-2p^3 - 3p^2 + 4p + 7$

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EXERCISE 12.3 - Question No. 3

Find the value of the following expressions, when $x = -1$ (i)

$2x - 7$ (ii) $-x + 2$ (iii) $x^2 + 2x + 1$ (iv) $2x^2 - x - 2$

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EXERCISE 12.3 - Question No. 4

If $a = 2$ and $b = -2$, find the value of :

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EXERCISE 12.3 - Question No. 5

When $a = 0$ and $b = -1$ find the value of the given expressions :

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EXERCISE 12.3 - Question No. 6

Simplify the expressions and find the value if x is equal to 2 (i)

$x + 7 + 4(x - 5)$ (ii) $3(x + 2) + 5x - 7$ (iii) $6x + 5(x_2)$ (iv)

$4(2x - 1) + 3x + 11$

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EXERCISE 12.3 - Question No. 7

Simplify these expressions and find their values if

$$x = 3, a = 1 \text{ and } b = -2 \text{ (i) } 3x - 5 - x + 9$$

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EXERCISE 12.3 - Question No. 8

If $z = 10$ find the value of $z^3 - 3(z - 10)$. (ii) If $p = -10$, find the value of $p^2 - 2p - 100$

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EXERCISE 12.3 - Question No. 9

What should be the value of a if the value of $2x^2 + x - a$ equals to 5, when $x = 0$?

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EXERCISE 12.3 - Question No. 10

Simplify the expression and find its value when $a = 5$ and $b = -3$

then $2(a^2 + ab) + 3 - ab$

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SOLVED EXAMPLES - Question No. 1

Identify, in the following expressions, terms which are not constants.

Give their numerical coefficients:

$$xy + 4, 13 - y^2, 13 - y + 5y^2, 4p^2q - 3pq^2 + 5$$

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SOLVED EXAMPLES - Question No. 2

What are the coefficients of x in the following expressions ?

$4x - 3y$, $8 - x + y$, $y^2x - y$, $2z - 5xz$ (b) what are the coefficients

of y in the following expressions ?

$4x - 3y$, $8 - yz$, $yz^2 + 5$, $my + m$

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SOLVED EXAMPLES - Question No. 3

State with reasons, which of the following pairs of terms are of like

terms and which are of unlike terms : (i) $7x$, $12y$ (ii) $15x - 21x$ (iii)

$4ab$, $7ba$

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SOLVED EXAMPLES - Question No. 4

Collect like terms and simplify the expression :

$$12m^2 - 9m + 5m - 4m^2 - 7m + 10$$

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SOLVED EXAMPLES - Question No. 5

Subtract $24ab - 10b - 18a$ from $30ab - 12b + 14a$.

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SOLVED EXAMPLES - Question No. 6

From the sum of $2y^2 + 3yz$, $-y^2 - yz - z^2$ and $yz + 2z^2$,

subtract the sum of $3y^2 - z^2$ and $-y^2 + yz + z^2$

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SOLVED EXAMPLES - Question No. 7

Find the values of the following expressions for $x = 2$. (i) $x + 4$ (ii)

$4x - 3$ (iii) $19 - 5x^2$ (iv) $100 - 10x^3$

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SOLVED EXAMPLES - Question No. 8

Find the value of the following expressions for $x=2$ i) $x+4$ ii) $4x-3$ iii)

$19 - 5x^2$ iv) $100 - 10x^3$

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SOLVED EXAMPLES - Question No. 9

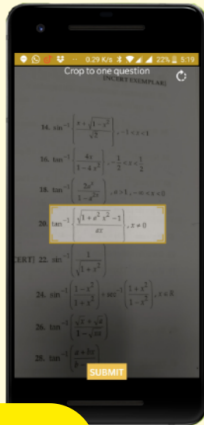
Find the value of the following expressions for $a = 3, b = 2$. (i)

$a + b$ (ii) $7a - 4b$ (iii) $a^2 + 2ab + b^2$ (iv) $a^3 - b^2$

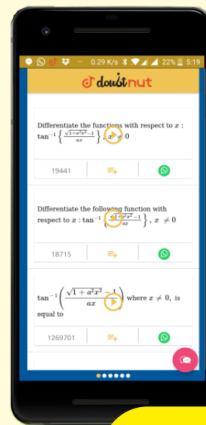
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